## THE CLAIMS

What is claimed is:

1. A golf ball comprising a polymeric composite which comprises at least one polybutadiene.

2. The golf ball of claim 1, wherein the polymeric composite has less than about 5 percent *vinyl*-isomer content in the polybutadiene.

3. The golf ball of claim 2, wherein the polymeric composite has less than about 3 percent *vinyl*-isomer content in the polybutadiene.

4. The golf ball of claim 1, wherein the polymeric composite has at least about 20 percent *trans*-isomer content in the polybutadiene.

5. The golf ball of claim 1, wherein the at least one polybutadiene has a molecular weight of at least about 200,000 and a polydispersity of less than about 3.

6. The golf ball of claim 1, wherein the polymeric composite comprises a plurality of nanoparticles having an average size of less than about 5000 nm.

7. The golf ball of claim 6, wherein the nanoparticles comprise silica.

8. The golf ball of claim 1, wherein the golf ball comprises at least two layers and the polymeric composite is disposed in at least one of the two layers.

9. The golf ball of claim 1, wherein the polymeric composite is disposed in a core of the golf ball.

10. The golf ball of claim 1, wherein the polymeric composite is disposed in a cover layer of the golf ball.

11. The golf ball of claim 1, wherein the polymeric composite is disposed in an elastomeric thread that forms a layer in the golf ball.

12. The golf ball of claim 1, wherein the polymeric composite comprises at least one polyisoprene polymer.

13. The golf ball of claim 12, wherein the at least one polyisoprene polymer has a *trans*-isomer content of at least about 10 percent.

14. The golf ball of claim 12, wherein the polymeric composite comprises a blend of the at least one polyisoprene polymer and at least one polybutadiene polymer.

15. The golf ball of claim 1, wherein the polymeric composite comprises a blend of at least a first polymer having a first molecular weight and a second polymer having a second molecular weight, wherein the first and second molecular weights differ.

16. The golf ball of claim 15, wherein the first and second molecular weights differ by at least about 100,000.

17. The golf ball of claim 1, wherein the effective modulus of the crosslinked polymeric composite is less than about 110 MPa.

18. The golf ball of claim 1, wherein the coefficient of restitution of the polymeric composite is greater than about 0.8.

19. The golf ball of claim 1, wherein the flexural modulus of an uncrosslinked compound comprising the polymeric composite is greater than about 3.5 MPa.

20. A method of preparing the golf ball of claim 1 which comprises:

combining a first polybutadiene cement having at least about 50 percent *trans*-isomer content and a second polybutadiene cement having at least about 90 percent *cis*-isomer content to form a first mixture;

evaporating at least substantially all of the solvent from the first mixture to obtain a polymeric composite;

combining the polymeric composite with at least one crosslinking agent to obtain a second mixture; and

forming the second mixture into at least a portion of the golf ball.

21. The method of claim 20, wherein the forming comprises injection molding.

22. The method of claim 20, wherein the first polybutadiene cement has been polymerized in the presence of a sufficient amount of cobalt-catalyst to increase the *trans*-isomer content of the polybutadiene.

23. The method of claim 20, wherein at least one of the polybutadiene cements has been polymerized in the presence of a sufficient amount of nickel or neodymium catalyst to increase the molecular weight of the cement.

24. A golf ball comprising:

a polymeric composite which comprises:

a first polybutadiene having at least 90 percent *cis*-isomer;

a second polybutadiene having at least 70 percent *trans*-isomer; and

a plurality of nanoparticles,

wherein the polymeric composite comprises a polybutadiene has less than about 5 percent *vinyl*-isomer content.

25. A golf ball formed from a crosslinked polymeric composite wherein the flexural modulus of the uncrosslinked polymeric composite is greater than about 3.5 MPa.